

NASA TECH BRIEF

Lyndon B. Johnson Space Center



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Method of Attaching Insulation Tiles

The problem:

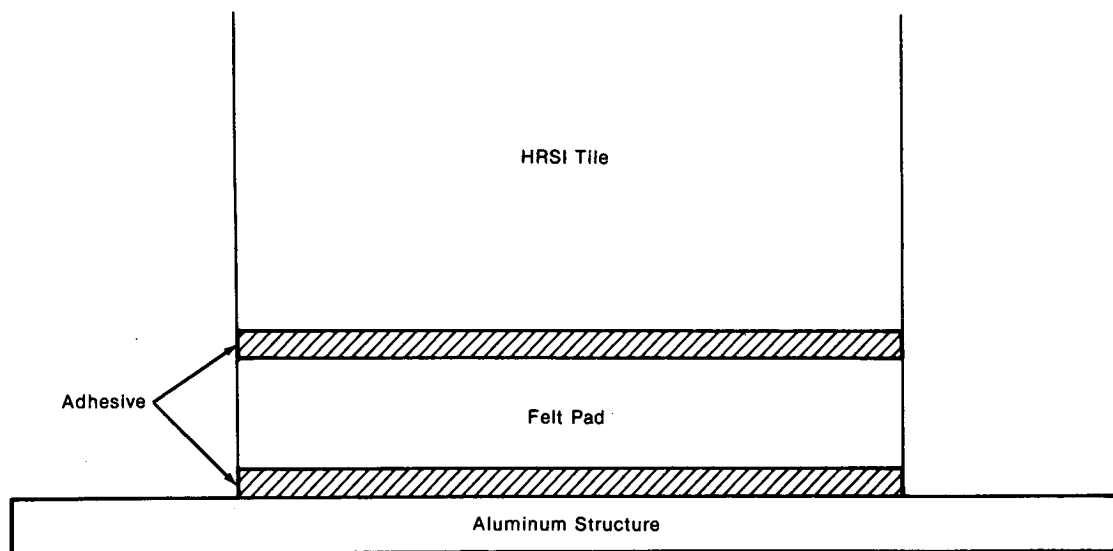
High-temperature reusable surface insulation (HRSI) tiles are frequently used to protect metal surfaces from extreme temperature environments [e.g., 115 to 1,543 K (-250° to 2,300° F)]. The tiles are attached to the metal surfaces using flexible bonds. The flexible bonds protect the fragile tiles from strains imposed by the metal surfaces. At low temperatures [approximately 113 K (-170° F)] the bonds undergo glass transition, i.e., they become rigid, losing their flexibility. Strain arrestor plates used underneath the tiles are not the best answer because of the added weight.

The solution:

Felt pads attached underneath the tiles add very little weight and retain flexibility at low temperatures.

How it's done:

The illustration shows the new configuration. First, a very thin layer of RTV (room-temperature vulcanizing) silicone adhesive is applied to the tile surface. Next, a felt pad is attached to the adhesive. Finally, the tile-felt combination is attached to the metal surface by means of a similar adhesive layer. The felt effectively absorbs all the strain imposed by the surface even at cold temperatures.



New Configuration Using Felt Pad

(continued overleaf)

Note:

Requests for further information may be directed to:

Technology Utilization Officer
Johnson Space Center
Code AT3
Houston, Texas 77058
Reference: TSP75-10104

Patent status:

This invention is owned by NASA, and a patent application has been filed. Inquiries concerning nonexclusive or exclusive license for its commercial development should be addressed to:

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Johnson Space Center
Code AM
Houston, Texas 77058

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